

❖ CM-040 GE / CB-040 GE

Progressive Scan

C₃ Camera Suite
 Unlimited
 Digital
 Switchability



- Member of C₃ Compact series, covering VGA to UXGA resolution
- 776 (h) x 582 (v) 8.3µm square pixels
- 1/2" progressive scan - Monochrome and Bayer mosaic color versions
- 61.15 frames/second with full resolution in continuous operation
- Increased frame rate with vertical binning (CM-040 GE) and partial scan
- Exposure time from 54.874µs to 2 sec. using Pulse Width trigger mode
- Programmable exposure from 54.874µs to 16.353ms in Full Frame scan
- Sequence trigger mode for on-the-fly change of gain, exposure and ROI
- LVAL Synchronous/-asynchronous operation (auto-detect)
- Auto iris lens video output allows a wider range of light
- GigE Vision interface with 10 or 8-bit output
- Programmable GPIO with opto-isolated inputs and outputs
- Comprehensive software tools and SDK for Windows XP/Vista

GigE™
 VISION



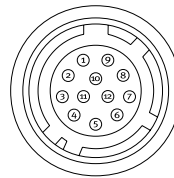
Specifications for CM-040 GE / CB-040 GE

Specifications	CM-040 GE / CB-040 GE
Sensor	1/2" progressive scan CCD
Pixel Clock	33.75 MHz
Frame rate full frame	61.15 frames/second
Active area	6.49 (h) x 4.83 (v) mm
Cell size	8.3 (h) x 8.3 (v) μ m
Active pixels	776 (h) x 582 (v)
Color (CB-040 GE)	Raw Bayer output, host-based interpolation
Read-out modes	Full 776 (h) x 582 (v) 61 fps 1/2 partial scan 776 (h) x 294 (v) 110 fps 1/4 partial scan 776 (h) x 146 (v) 186 fps 1/8 partial scan 776 (h) x 74 (v) 280 fps 2/3 partial scan 776 (h) x 390 (v) 87 fps Vertical binning 776 (h) x 291 (v) 111 fps* Region-of-interest (ROI) User Definable. Memory read-out *Note: CM-040 GE only
Sensitivity (CM-040 GE)	0.2 Lux (On sensor, max. gain, shutter off, 50% video)
Sensitivity (CB-040 GE)	1.3 Lux (On sensor, max. gain, shutter off, 50% video)
S/N ratio	>50 dB (0 dB gain)
Video output	GigE Vision, 8-bit or 10-bit
Auto-iris lens video output	0.7 Vp-p, enabled by internal switch
Gain	Manual -3dB to +24 dB
Synchronization	Internal X-tal, External hardware trigger via GPIO Software trigger via GigE Vision
GPIO Module	Configurable 14-in/9-out switch (LUT)
Input/output switch	12-bit counter based on 25MHz clock or Pixel Clock
Clock generator (one)	20-bit counters programmable for length, start point, end point, repeat
Pulse generators (four)	
Hardware trigger modes	Continuous, Pre-Select, Pulse Width, Frame delay, Sequence (Gain, Shutter, ROI)
Electronic shutter	Pre-set shutter 1/60 to 1/10,000 in 10 steps Programmable exposure 2L(54.874 μ s) to 596L (16.353ms) in 1L steps Exposure Time (Abs) μ sec – user definable. Same range as PE Pulse Width max. 2 sec. (can be set by 100 μ s unit or Pixel Clock unit)
Control interface	Register based GigE Vision/GenICam compliant
Functions controlled via GigE Vision interface	Shutter, Gain, Black level, Trigger mode, Readout mode, GPIO setup, ROI (GenICam mandatory functions)
GigE Vision streaming control	Packet size (1428 to 4040 bytes), Delayed (frame) readout, Inter-packet delay,
Indicators on rear panel	Power / Hardware trigger, GigE link, GigE activity
Operating Temperature	-5°C to +45°C
Humidity (operation)	20 - 80% non-condensing
Storage temp./humidity	-25°C to +60°C / 20 to 80%
Vibration	10G (20Hz to 200 Hz XYZ)
Shock	70G
Regulations	CE (EN 61000-6-2, EN-61000-6-3), FCC part 15 class B, RoHS/WEEE
Power	12-24V DC +/-10%, 3.6W (@12V)**
Lens mount	C-mount
Dimensions (H x W x L)	29 x 44 x 75 mm
Weight	125 g

**NOTE: voltages above 13.2V DC only supported on CM-040 models with serial numbers of 401500 or higher and on CB-040 models with serial numbers of 400746 or higher

Connector pin-out

DC In / GPIO



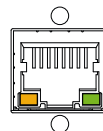
HIROSE HR10A-10R-12PB-01

Connector Pin-out

- | | |
|--------|--------------------------------|
| Pin 1 | GND |
| Pin 2 | +12 V DC input |
| Pin 3 | Opto in 2(-)/GND |
| Pin 4 | Opto in 2(+)* / Auto iris lens |
| Pin 5 | Opto in 1(-) |
| Pin 6 | Opto in 1(+) |
| Pin 7 | Opto out 1(-) |
| Pin 8 | Opto out 1(+) |
| Pin 9 | Opto out 2(-) |
| Pin 10 | Opto out 2(+) |
| Pin 11 | +12V DC input |
| Pin 12 | GND |

* Pins 3 and 4 can be configured by internal switch selection

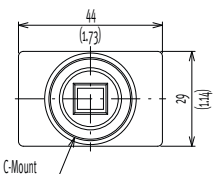
GigE Vision interface Accepts RJ-45 with thumbscrews



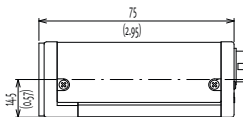
- | | | | |
|-------|---------|-------|---------|
| Pin 1 | TRD+(0) | Pin 5 | TRD-(2) |
| Pin 2 | TRD-(0) | Pin 6 | TRD-(1) |
| Pin 3 | TRD+(1) | Pin 7 | TRD+(3) |
| Pin 4 | TRD+(2) | Pin 8 | TRD-(3) |

Dimensions

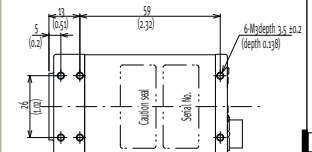
Front view



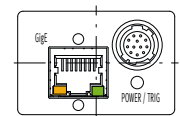
Side view



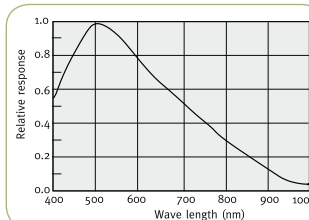
Bottom view



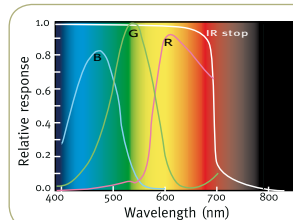
Rear view



Spectral Response CM-040 GE



Spectral Response CB-040 GE



Ordering Information

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|-----------|---|
| CM-040 GE | 1/2" Monochrome Progressive Scan Camera |
| CB-040 GE | 1/2" Bayer Mosaic Color Progressive Scan Camera |

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